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10/582,220

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Shinya Mizone

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EXAMINER

SMITH, JEREMIAH R

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/582,220

Applicant(s)

MIZONE ET AL.

Examiner

JEREMIAH SMITH

Art Unit

1791

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 December 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) 1, 4 and 6 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2, 3, and 5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election of claims 2, 3, and 5 in the reply filed on 12/18/08 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).
2. Claims 1, 4, and 6 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to nonelected inventions, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 12/18/08.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2, 3, and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakata USP 5476563 in view of Goldwasser USP 4376834 and further in view of Tabata et al. USP 2003/0106740 A1.
5. Regarding claims 2 and 3, Nakata teaches a method of producing an elastic strip material, comprising the steps of: extruding out a fluid mixture from a nozzle of a resin extruder forming a stream of the extrudate ("extruder that extrudes soft vinyl chloride resin", column 2 lines 49-50), subsequently guiding the stream having not solidified yet into a liquid heating zone ("water tank...water heater", column 3 lines 24-26) whose

interior has been heated to or above a desired temperature ("water is kept at a fixed temperature, 50-60 degrees Celsius", column 3 lines 12-13), so that the stream thus heated is allowed to solidify ("stabilize", column 4 line 18) and simultaneously pressed into a desired peripheral shape while advancing through the heating zone (Molding rolls for shaping, items 3 and 5 of Figure 1, are partially submerged in the fluid, item 17; furthermore, the level of the water or the height of the molding rolls can be adjusted further submerging the rolls, column 4 lines 31-33. Shaping will occur as the material advances through the liquid heating zone), and finally discharging from the liquid heating zone the solidified and pressed stream so as to be cooled down to an ambient room temperature, thereby giving the elastic strip material (after passing the last roll, item 8 of Figure 1, the pressed and shaped product will exit to atmosphere and inherently reach ambient temperature). Nakata does not teach the method wherein the polymer is a heat setting foamed material comprising a polyurethane prepolymer, a latent solidifier obtained by deactivating a solid polyamine, and a compressed gas.

6. In the analogous art of the extrusion of polymers for use in household goods (see abstract), Goldwasser teaches a method of forming a foaming polyurethane to be extruded (extrusion, column 11 line 45) comprising a polyurethane prepolymer ("polyisocyanates", abstract, isocyanates are polyurethane prepolymers), a latent solidifier ("isocyanate reactive material", abstract) obtained by deactivating a solid polyamine (see abstract), and a compressed gas ("blowing with inert gases", column 11 lines 29-30) for the benefit of producing a heat resistant polymer with properties comparable to thermoplastic polymers. It would have been obvious to one of ordinary

skill in the art at the time of the invention to include foaming a polyurethane, including a latent solidifier as claimed and a compressed gas as set forth in Goldwasser, in the Nakata method, for the benefit of producing a heat resistant polymer with properties comparable to thermoplastic polymers.

7. the art combination still does not explicitly detail foaming a heat setting polyurethane composition.

8. In an analogous art of preparation of shaped thermosetting polyurethane articles comprising polyamine and polyurethane prepolymers for household applications, Tabata teaches a method of forming a heat setting polyurethane to be foam-extruded comprising a polyurethane prepolymer, a latent solidifier obtained by deactivating a solid polyamine, and a compressed gas ("a thermosetting composition consisting of a polyurethane prepolymer and an inactivated solid polyamine as a latent hardener [solidifier]. A gas is dispersed in the thermosetting composition, prior to feed into a mold, so that it can foam and solidify", see abstract) for the benefit of producing a heat resistant foamed member with properties comparable to thermoplastic polymers.

9. It would have been obvious to a person having ordinary art at the time of invention to modify the method of the Nakata and Goldwasser combination, in view of Tabata for the benefit of producing a heat resistant foamed polyurethane article with properties comparable to thermoplastic polymers.

10. Regarding claim 5, the previous combination of Nakata and Goldwasser remains as applied above, and further, Nakata teaches an apparatus (see Figure 1), comprising a resin extruder (item 1), a liquid tank (item 9) having and cooperating with at least one

rotor ("forming roll", item 5), a motor for driving the rotor to rotate in situ (such a motor would inherently be necessary), and a heating bath (item 17) including the liquid tank (item 9), the resin extruder comprising a reservoir for storing (such a reservoir would inherently be necessary for an extruder intended to extrude soft vinyl chloride as described in column 2 lines 49-50) therein a composition, and a nozzle (see column 2 line 51) for extruding a fluid mixture to form a stream, the rotor being constructed such that the resin stream of fluid mixture `a` effluent from the nozzle is guided into a hot liquid (50-60 degree Celsius water positioned below the nozzle, see column 3 line 13 and Figure 1) held in the liquid tank and caused to advance through it, the heating bath having therein a trough ("concave groove", column 3 line 61) formed in and along the periphery of the rotor so as to receive the resin stream of fluid mixture `a`, and a surface shaping member disposed close to and facing the trough ("molding roll", item 3) so that the fluid mixture `a` is heated in the heating bath and form a resin strip `b`, the heating bath further comprising an outlet guide ("feeding roll", item 8) for directing the resin strip `b` towards the outside of the liquid tank, thereby giving the material.

11. Nakata and Goldwasser does not appear to teach a gas feeding pipe for charging the material to be extruded.

12. In analogous art, Tabata teaches feeding gas to a reservoir ("a given amount of gas will be fed into the cylinder [reservoir], before a batch of the thermosetting composition is delivered to the cylinder", paragraph [0073]) where it may contact the composition to be extruded for the benefit of producing a polymer which will foam after extrusion.

13. It would have been obvious to a person having ordinary skill in the art at the time of invention to modify the apparatus of Nakata and Goldwasser, with teachings of Tabata by including a gas feeding pipe into the reservoir for the benefit of producing a polymer which will foam after extrusion.

Response to Arguments

14. Applicant's arguments filed on 12/18/2008 have been fully considered but they are not persuasive for the reasons detailed below.

15. Regarding the 103(a) rejection of claims 2 and 3 over Nakata in view of Goldwasser and further in view of Tabata, **applicant presents the following arguments.**

i) Nakata is directed to a method of making a door mat, not an elastic strip material.

However, making an "elastic strip" is an intended use of the process and is not given patentable weight. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). Furthermore, a doormat could reasonably be considered an "elastic strip".

ii) The molding material of Nakata is not required to be heat-setting as claimed.

No cross-linking or curing step is mentioned in claims 2 or 3, only that the extruded material is guided into a heating zone where it may solidify. A heat setting polymer is not necessary for this action. Furthermore, such claimed heating zone is taught by Nakata in column 3 lines 24-26 as described above.

iii) The water tank of Nakata is used for cooling rather than for heating.

In the case of Nakata, the water is maintained at a temperature of 50-60 degrees Celsius (column 3 line 13) using heaters (item 13 of Figure 1) and coolers and column 3 lines 23-37 clearly describes heating the water supply to a desired temperature in which the extruded material is hardened.

iv) The specifics of the polymer claimed are not taught by Nakata.

Many generic polymers which are extrudable and settable at a certain temperature could be processed by the method of Nakata in order to produce a door mat, or alternatively "an elastic strip material". One substituting a foamable polymer for the non-foamable polymer of Nakata would obtain the predictable result of a doormat, or alternatively "an elastic strip material", which is made of foam. The secondary reference (Goldwasser) teaches that the claimed compositions were known in the art for producing foamed polymers (column 3 lines 34-38) for use in "household goods". It is the examiner's belief that such household goods could include doormats. To further clarify and provide evidence, both Zocco and Chidgey (USP's 3506600 and 3573142) teach that construction of doormats from foamed polymers is well known in the art. For these reasons, the simple substitution of the materials of Goldwasser for those of Nakata would produce predictable results and therefore, a prima facie case of obviousness exists (see MPEP 2141 and *KSR International Co. v. Teleflex Inc. (KSR)*, 550 U.S. 398, 82 USPQ2d 1385 (2007)).

v) There is no reservoir for storing the material to be extruded.

Some type of reservoir would inherently be present in an extruder, item 1 of Figure 1.

vi) **Nakata does not teach a gas feeding pipe for charging the material to be extruded.**

It is true that neither Nakata nor Goldwasser teach the use of a gas feeding pipe for charging the material to be extruded; however the third reference relied upon (Tabata) teaches the use of gas feeding pipes for charging a polymer which is to be extruded as a foam. It is the examiner's belief that precharging a foamed material using gas feeding pipes was known in the art at the time of invention and is among the more common methods for extruding a foamed polymer and therefore, would have been obvious to a person having ordinary skill in the art at the time of invention.

vii) **Solidification of a foamed stream in a heating zone is non obvious.**

However, the claimed subject matter is taught by Nakata: "subsequently guiding the stream having not solidified yet into a liquid heating zone ("water tank...water heater", column 3 lines 24-26) whose interior has been heated to or above a critical solidification temperature ("water is kept at a fixed temperature, 50-60 degrees Celsius", column 3 lines 12-13. Furthermore, "heating to a critical solidification temperature" is described in column 3 lines 13-15), so that the stream thus heated is allowed to solidify ("stabilize", column 4 line 18) and simultaneously pressed into a desired peripheral shape while advancing through the heating zone.

16. Regarding the 103(a) rejection of claim 5 over Nakata in view of Goldwasser and further in view of Tabata, applicant made the same arguments; however, neither the material to be worked upon nor the article to be made are given patentable weight in an apparatus claim. Only the structural features of the apparatus are to be considered as

described in MPEP 2114 and 2115. For this reason, all arguments except v and vi are moot.

17. Regarding v and vi, Nakata explicitly teaches all of the claimed apparatus features except the reservoir for holding the extruded material, the motor for driving the rotor, and the gas feeding pipes for charging the reservoir.

18. However, some type of reservoir would if not inherently, then obviously be necessary for holding the material to be extruded as a part of item 1 of Figure 1 which is an extruder.

19. Furthermore, the rotor would have to be driven either by hand or by a motor since the pressing action would impart resistance on the rotation of the rotors. A motor would obviously be favorable to reduce the amount of work required by the user.

20. Additionally, since it would be obvious to produce a foamed article as described above it would further be obvious to combine the gas feeding pipe of Tabata with the apparatus of Nakata to in order render the apparatus of Nakata capable of producing a foamed article. Furthermore, such a combination would yield only the predictable result of an apparatus capable of foaming and reshaping and extruded article and therefore, a prima facie case of obviousness exists. (*KSR International Co. v. Teleflex Inc. (KSR)*, 550 U.S. 398, 82 USPQ2d 1385 (2007))

Conclusion

21. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JEREMIAH SMITH whose telephone number is 571-270-7005. The examiner can normally be reached on Monday to Thursday, 7:30 AM to 5:00 PM and every other Friday, 8:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Del Sole can be reached on 571-272-1130. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JRS

/Joseph S. Del Sole/
Supervisory Patent Examiner, Art Unit 1791